Association Between Serum Alpha-Tocopherol and Serum Androgens and Estrogens in Older Men

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Abstract: There is evidence supporting a role for sex hormones in the etiology of prostate cancer. Supplementation with alpha-tocopherol reduced prostate cancer in the alpha-Tocopherol, beta-Carotene Prevention Study (ATBC Study). The objective of this study was to assess the relation of baseline levels of serum alpha-tocopherol and serum sex hormones in older men. A cross-sectional analysis of serum alpha-tocopherol and sex hormone concentrations was conducted within a subset of the ATBC Study. Serum was collected in the morning after an overnight fast at baseline from 204 men ages 50-69 years participating in the ATBC Study and free of prostate cancer. Hormones were measured by radioimnunoassay, and alpha-tocopherol was measured by high-performance liquid chromatography by standard procedures. Multivariate linear regression was used to evaluate the association of serum alpha-tocopherol with nine androgens and estrogens after controlling for age, body mass index, hormone assay batch, and serum cholesterol. Serum alpha-tocopherol was significantly inversely associated with serum androstenedione, testosterone, sex hormone-binding globulin, and estrone. The difference in hormone concentration per milligram of alpha-tocopherol was 1.8-2.6% for these four hormones. These results indicated that alpha-tocopherol is related to concentrations of several sex hormones in older men and may have implications for the observed protective effect of supplemental vitamin E in relation to prostate cancer in the ATBC Study.